

# IMPROVING CALIFORNIA'S SYSTEM OF MARINE MANAGED AREAS

In March of 1997 the Resources Agency released the strategy, *California's Ocean Resources: An Agenda for the Future* (Ocean Agenda). The document included a finding that California's array of ocean and coastal managed area designations (such as Reserves, State Reserves, Refuges, State Parks, and Natural Reserves) is complex and often confusing. The 18 marine or estuarine and 6 terrestrial classifications and sub-classifications for state-managed areas along the coast have evolved over the last 50 years on a case-by-case basis through legislative and administrative actions and by public referendum. These designations have not conformed to any plan for establishing marine managed areas in the most effective way or in a manner that ensures that the most representative or unique areas of the ocean and coastal environment are included. Questions remain regarding the effectiveness and enforceability of these classifications meant to safeguard the state's ocean and coastal biodiversity and to promote public use and enjoyment of these resources.

The Ocean Agenda recommended that the state evaluate the array of designations to develop a more effective and less complicated statewide system of ocean and coastal managed areas. It further recommended developing a comprehensive program, with clear criteria for creating, administering, and enforcing management measures in these areas. To address this issue, the Resources Agency convened the State Interagency Marine Managed Areas Workgroup to better define and evaluate state marine managed area classifications. The task of the workgroup was related primarily to an organizational or "classification" analysis, as opposed to an analysis of the suitability or effectiveness of specific sites or the need for new sites. Such a comprehensive analysis is desirable, yet will likely require additional research and monitoring efforts along many portions of the coast, as well as a systematic method for storing and comparing the resulting and existing data.

The workgroup was limited to state agencies and the University of California, UC Sea Grant Cooperative Extension and the National Center for Ecological Analysis and Synthesis in its membership; federal and local marine managed areas play an important role in California, but their establishment and system-wide goals are beyond the authority of the State of California. However, it will be critical for future efforts to be coordinated with representatives of these areas as well as other stakeholders.

This report, and its recommendations for improving the organizational system and management of the array of state marine managed areas in California, is the result of a collaborative effort by workgroup members spanning an 18-month period. The workgroup conducted its deliberations, where possible, in cooperation with other MMA efforts that were underway in California. One such effort was the passage of Assembly Bill 993 (Shelley, 1999), the Marine Life Protection Act, which requires the Fish and Game Commission to adopt a master plan for guiding the adoption and implementation of a Marine Life Protection Program to be established within the Department of Fish and Game. This master plan and program would focus on the protection of living marine resources and their habitats through MMAs where the extraction of such resources is prohibited or restricted in some fashion. Additionally, AB 993 calls for the completion of this report by January 2000. The requirements of AB 993 are consistent with, and complementary to, the recommendations made in this report.

A draft of this report was released in August of 1999 with findings and recommendations that provided the basis for five public workshops along the California coast and another at the State

Capitol. Input was solicited from the public, other government agencies, non-profit organizations and private industry. Through this public process, the state array of marine managed areas was also examined within the context of the broader system of local, state and federal managed areas. A number of substantive changes were made to this report as a result of the dialogue held during public workshops and input received in the form of written comments. Some of these changes include the recommendation of a single, 6-category system for classifying state MMAs, reducing the burden upon individuals and organizations wishing to propose a site for designation, and describing the relationship between the recommendations of this report and the recently-enacted AB 993. It is hoped that this information will continue to be used by the Legislature, administrative policy-makers, resource managers and other stakeholders for improving California's array of marine managed areas.

## **THE ROLE OF MARINE MANAGED AREAS**

MMAs can offer many benefits, including protecting habitats, species, cultural resources and water quality; enhancing recreational opportunities; and contributing to the economy through such things as increased tourism and property values. In addition, MMAs may benefit fisheries management by maintaining healthy fisheries. There is mounting evidence to suggest that certain types of marine managed areas allow exploited, resident species to recover within their borders and may enhance productivity of some species outside their borders. However, these areas should be viewed from the broader perspective as one of many management tools that can be used to protect or conserve marine species, such as measures limiting the number of vessels or types of gear, and establishing seasons or quotas. Therefore, marine managed areas can be an important tool for resource managers, but should not be viewed as the single answer to the resource protection challenges facing California.

## **DEFINITION OF MARINE MANAGED AREAS**

In its deliberations, it was important for the interagency workgroup to first define the term "marine managed areas" (MMAs) and distinguish it from the more commonly known term "marine protected areas" (MPAs). The term "MPA" is typically used to describe those areas of intertidal or subtidal terrain that are reserved by law or regulation for the protection of part or all of the living resources within the defined areas. MMAs encompass a broader spectrum of management purposes, including the protection of geological, cultural and recreational resources. For this project, the workgroup chose the following definition:

Marine managed areas are named, discrete geographic marine and estuarine areas along the California coast designated using legislative, administrative or voter initiative processes, and intended to protect, conserve or otherwise manage a variety of resources and their uses.

As in the Ocean Agenda, the workgroup explicitly uses the term "marine managed area" to accomplish two things. First, the term "protected" often gives the misimpression that the designated area is under complete protection, such that the extraction of marine resources is not allowed. Because many of the existing classifications and designated sites do not provide this level of protection, the term "managed" has been used to provide a more accurate description. Second, how we manage our shoreline environment has definite and measurable effects upon both the marine and estuarine components of the ocean ecosystem. Terrestrial

sites along the California coast may or may not be designated for marine resource management purposes, yet these areas clearly have an impact on marine resource management and enforcement activities, and are relevant to the discussion. However, if such terrestrial areas were included in the analysis and recommendations of this report, it would be necessary to re-design the entire statewide array of protection classifications (both land and sea) to be complete. Therefore the workgroup's recommendations are applicable only to those management areas subject to tidal influence.

General areas that are administratively established for recreational or commercial fishing restrictions, such as seasonal or geographic closures or size limits, are not included in the definition of MMAs. The boundaries and applicable regulations for these areas tend to change over time (some are long-term, but many are not) and are difficult to analyze in conjunction with more permanent sites. This is not to imply that such areas are not important or significant in managing ocean and coastal resources, but simply that their consideration was beyond the scope of the workgroup's efforts in preparing this report. An analysis of these areas is more appropriately considered in conjunction with any future site-specific analysis of the state array of MMAs.

In this report, the interagency workgroup has also used the term "array" to describe the existing group of MMA classifications and individual sites, rather than using the more common term "system" of MMAs. The word "system" in the natural environment may be defined as "a set or arrangement of things so related as to form a unity" (American Heritage). In the case of California's MMAs, they do not comprise a true system as they do not form 'a unity' and the individually designated sites are not necessarily 'related'. The interagency workgroup determined that the term "array" more correctly describes the group of state classifications and designated MMAs in California.

## **STATE AGENCIES WITH RESPONSIBILITIES RELATED TO MARINE MANAGED AREAS**

There are numerous state agencies with ocean and coastal resource management responsibilities. Seven have activities specifically related to state MMAs and adjacent terrestrial areas. Within the Resources Agency there are the California Coastal Commission, California Department of Fish and Game, California Department of Forestry and Fire Protection, California Department of Parks and Recreation, California State Lands Commission, and San Francisco Bay Conservation and Development Commission. Within the California Environmental Protection Agency is the State Water Resources Control Board (and the related regional water quality control boards). Independently, the University of California also has management responsibilities in University-owned coastal areas set aside for research and educational purposes.

A description of these agencies and their responsibilities is included in Appendix A. In general, responsibilities can range from consultation and permitting authority to site management or designation authority. In addition to these state agencies, the State Legislature has designation authority.

## CLASSIFICATION OF STATE MARINE MANAGED AREAS

The array of state MMAs in California is the result of years of designations through legislative, administrative and statewide ballot initiative actions. Designations have, for the most part, been made on a case-by-case basis or in an attempt by a single organization to represent a diversity of regions or habitats through multiple classifications. In situations when specific areas require protection, a new classification has often been developed rather than using a previously established one.

As a result, there are currently 18 classifications and sub-classifications of MMAs that can be applied to the marine or estuarine environment along the California coast. Only 16 of these classifications have actually been used (see Appendix B for detailed information about all classifications and Appendix C for a list of units in each classification). The two classifications not used to date are italicized in the list below. In some cases there are two or more state classifications that overlay one another in a particular region to achieve multiple purposes, and often there is also an overlay of a federal designation. These state classifications and sub-classifications, in alphabetical order:

1. Areas of Special Biological Significance
2. Clam Refuges (Clam Preserves)
3. *Cultural Preserves (a subunit of the State Park System)*
4. Ecological Reserves
5. Historical Units
6. Marine Resources Protection Act Ecological Reserves
7. Natural Preserves (a subunit of the State Park System)
8. Refuges
9. Reserves
10. State Coastal Sanctuary
11. State Estuaries
12. State Parks
13. State Recreation Units - State Beaches
14. State Recreation Units - State Recreation Areas
15. *State Recreation Units - Underwater Recreation Areas*
16. State Reserves
17. State Seashores
18. State Wildlife Areas

In addition, there are currently 6 classifications and sub-classifications within which adjacent terrestrial areas have been designated along the California coast (the two classifications not used along the coast to date are in italics):

1. Demonstration Forests
2. Natural Reserves
3. Off-Highway Vehicular Recreation Areas
4. *State Recreation Units - Wayside Campgrounds*
5. State Wildernesses (a subunit of the State Park System)
6. *Wilderness Areas*

While the recommendations of this report do not specifically apply to these terrestrial classifications, it is important to recognize that the designation and management of sites along the shoreline has a direct affect upon the marine and estuarine environment.

State MMAs are designated in California for a diversity of purposes, from protecting all living marine resources or a specified set of species to enhancing public recreation or preserving cultural resources. Classifications with similar sounding names (such as Ecological Reserve, State Reserve and Reserve) often have very different purposes. In addition, the limited number of management objectives, coupled with the large number of classifications, has resulted in an overlap in the intent of certain classifications. The State Interagency Marine Managed Areas Workgroup (Workgroup) identified these, and many other issues, which are discussed in the following analysis.

## **ANALYSIS OF THE STATE CLASSIFICATION SYSTEM FOR MARINE MANAGED AREAS AND RECOMMENDATIONS FOR CHANGE**

The existing multitude of classifications for state MMAs and adjacent terrestrial areas is duplicative, confusing and at times conflicting. Furthermore, because a number of state agencies with differing mandates have designation or management responsibilities in these areas, applicable rules and regulations are sometimes unclear or contain discrepancies. After evaluating the preceding information and numerous comments received from agencies with management responsibility for these areas, the Workgroup makes a number of observations and recommendations for California's state MMAs relative to:

- Purpose and Design
- Management and Enforcement
- Public Education and Outreach
- Evaluation and Research

In each of the four sections, specific findings and associated recommendations are offered for improvements related to all California MMAs. In most cases, implementing the recommendations will require legislative or administrative action. In all cases, implementing the recommendations will require inter-governmental cooperation, as well as collaboration with private industry and the public.

### **A. Purpose and Design**

There is no overall mission, policy goal, or comprehensive program in place to guide the development of a logical and unified organizational system of state MMAs in California. This lack of purpose, direction and collaboration results in inconsistent terminology and site selection; a lack of standardized designation, research, and evaluation criteria; an inability to evaluate the effectiveness of the system; confusion over agency roles and responsibilities; and insufficient attention to funding needs.

***Finding. Existing state classifications and sites do not comprise an organized system of marine managed areas in California.***

California's MMAs do not comprise an organized system as the individual sites are not necessarily designated, classified or managed in a systematic manner. Without a system of MMAs, it is difficult for agencies to meet management objectives such as maintaining biodiversity, providing education and outreach, and protecting marine resources.

Because these areas are not designated, classified, or managed as an organizational system with standardized processes, mandates and regulations can be confusing or even conflicting. Users often find it difficult to clearly understand rules and regulations, and management personnel may find it difficult to know how to resolve management and regulatory issues for a given classification or site.

***Finding. There are too many state classifications for MMAs.***

The designation of MMAs has often occurred in an *ad hoc* manner over the years as concern for individual marine areas, species, or uses arose. Rather than attempting to designate areas consistent with existing classifications, new ones have often been created. This has led to a situation in which there are too many classifications, some of which have very similar purposes or names. For example, Ecological Reserves and State Reserves have similar purposes, yet they are given different names because they are established by different organizations. On the other hand, Reserves and Ecological Reserves both include the term "reserve". However, these classifications have different purposes and provide different levels of protection and management for ocean and coastal resources. In addition, it is not unusual for a particular area to have multiple state designations and possibly even one or more federal designations.

***Finding. Goals and objectives for some classifications are too broad or unclear.***

When goals are too broad or are unaccompanied by more specific objectives, it is difficult to identify standards for determining the success or failure in meeting these goals.

***Recommendation A-1. The array of MMA classifications and the designation and management of individual sites needs to be redesigned as an organized system.***

A statewide mission statement and statement of objectives are a necessary first step, upon which a system of state MMAs can be established in California. The following mission and statement of objectives are recommended as the foundation for a state system of MMAs:

Mission: to ensure the long-term ecological viability and biological productivity of marine ecosystems and to preserve cultural resources in the coastal sea, in recognition of their intrinsic value and for the benefit of current and future generations.

Statement of Objectives: to establish and manage state marine managed areas using science and clear public policy directives to:

- conserve representative or outstanding examples of marine habitats, biodiversity, ecosystems and significant natural and cultural features or sites;

- support and promote marine research, education, and science-based management;
- help ensure sustainable uses of marine resources; and
- provide and enhance opportunities for public enjoyment of natural and cultural marine resources.

***Recommendation A-2. A new classification system for state MMAs is needed and should include, at a minimum, classifications for (1) prohibiting the extraction of living and non-living marine resources, (2) limiting the extraction of living and non-living marine resources, and (3) protecting or enhancing water quality, preserving cultural resources or enhancing or restricting recreational activities.***

Table 1 (found at the end of the recommendations and summarized on the next page) identifies a recommended classification system for state MMAs in California, proposed entities to be responsible for designation and management, the purposes for each classification, proposed restrictions on human activities, and potential placement of the existing 18 classifications in the new system. Six classifications are recommended: Marine (Estuarine) Reserve, Marine (Estuarine) Park, Marine (Estuarine) Conservation Area, Marine (Estuarine) Cultural Preservation Area, Marine (Estuarine) Recreational Management Area, and Water Quality Protection Area.

Reserves are intended to protect all resources, living or non-living, while Parks primarily protect living and non-living resources from commercial extraction activities and are intended to be areas set aside for the public good. Conservation Areas are meant to protect living or geological resources from specified commercial and/or recreational extraction activities, Cultural Preservation Areas protect cultural resources from commercial and recreational extraction, and Recreational Management Areas protect or enhance recreational values or restrict specific recreational activities. Water quality protection areas are designed to restrict point and non-point discharges in areas where there are significant biological resources.

This classification system is being proposed based upon three options suggested in the draft report and subsequent public comment on those options. Public comments indicated that the most important aspects of an MMA system are both full and partial protection of living resources, a “public good” classification that restricts commercial activities, and some method of protection for geological, cultural and recreational resources. This proposed classification system is also consistent with AB 993 (Marine Life Protection Act) in that the first classification (Reserve) is defined similarly to the Marine Life Reserve cited in AB 993. Additionally, AB 993 is focused on the protection and conservation of living marine resources, for which another two of the above proposed classifications offer some protection.

Establishing this or any new state classification system will require that statutory and regulatory language be amended. Such changes should clarify and simplify the goals, objectives, and regulations pertaining to California's MMA classifications. In addition, to ensure consistency and understandability for the public, the names chosen for the classifications should be finalized based on the latest public research and in coordination

with the relevant federal programs, such as the National Marine Sanctuary Program, which is currently evaluating nomenclature for marine zones within federal sanctuaries.

### **Summary of Table 1**

<b>NAME OF AREA AND DEFINITION</b>
<b>1. Marine (Estuarine) Reserve</b> Protects all living and non-living marine resources from commercial and recreational exploitation, and may limit non-consumptive recreational uses that would compromise such protection.
<b>2. Marine (Estuarine) Park</b> Protects all living and non-living marine resources and cultural or recreational features from commercial exploitation, while allowing public use, enjoyment and education in a manner consistent with protecting resource values. Some human uses may be restricted to protect resource values.
<b>3. Marine (Estuarine) Conservation Area</b> Protects some living or geological marine resources (does not include cultural or recreational values) from certain commercial, recreational or a combination of commercial and recreational exploitation.
<b>4. Marine (Estuarine) Cultural Preservation Area</b> Protects all cultural resources from commercial or recreational exploitation.
<b>5. Marine (Estuarine) Recreational Management Area</b> Protects, enhances or restricts recreational opportunities while preserving basic resource values.
<b>6. Water Quality Protection Area</b> Protects water quality by prohibiting or limiting point source waste and thermal discharges by special conditions. Controls nonpoint source pollution to the extent practicable.

***Recommendation A-3. Following implementation of Recommendations A-1 and A-2, existing MMAs should be evaluated, based upon existing levels of protection, for integration into the new classification system.***

Each existing MMA should be reviewed by the managing state agency for integration into the new system, under recommendation from a state interagency coordinating committee (see Recommendation A-5). The managing state agencies should then forward their proposed re-classifications for existing MMAs to the appropriate designating entity (commission, board or State Legislature). In the case of MMAs that primarily protect living marine resources, proposed re-classifications should first be forwarded to the master plan team required pursuant to AB 993 (Marine Life Protection Act) for inclusion in the statewide master plan for marine protected areas.

***Recommendation A-4. In addition to the master plan for living marine resources required pursuant to AB 993 (Marine Life Protection Act; Shelley, 1999), a similar evaluation***

***should be conducted for existing sites intended to protect or manage cultural resources, recreational values and water quality to determine their adequacy in meeting the proposed objectives of the MMA system.***

A statewide analysis has never been conducted to determine where a network of sites would best be located to protect or conserve important habitats, species, cultural or recreational values, and water quality. Such an analysis is now required for living marine resources and their habitats by AB 993. Similar consideration should be given to determining the adequacy of existing sites for cultural resources, recreational values and water quality.

***Finding. There is no consistent site designation process among state agencies and the Legislature.***

Individual sites can be established by administrative action, legislative designation, or ballot initiative, based on independent processes and criteria. These processes and independent criteria may or may not include science-based analyses, public review, coordination among government agencies, or investigation of alternative forms of management. In addition, there are no consistent requirements for site proposals or designation criteria when establishing state MMAs.

***Recommendation A-5. Designation guidelines should be established for each classification, including a requirement that any new designations be considered within the context of existing state, federal and local sites.***

Designation guidelines based on the classification goals adopted for a state system of MMAs should be developed jointly by the appropriate managing agencies in cooperation with a state interagency coordinating committee (see Recommendation A-6). These guidelines should be used to provide a general sense of requirements for designating a site in any particular classification, and could include characteristics such as uniqueness of the area or resource, biological productivity, special habitats, cultural or recreational values, and human impacts to the area. New designations should be considered within the context of existing or proposed federal, state and local sites and their level of resource protection.

***Recommendation A-6. The site designation process must be made more consistent among designating entities.***

The site designation process should include a minimum structure for all designating entities, for responding to an annual proposal and review process. Upon completion of the master plan required pursuant to AB 993, the site proposal and review process should occur no less than once every three years. The designating entities should receive, consider and promptly act upon proposals to add, delete or modify MMAs. Elements of this process should include:

- A state interagency coordinating committee, with representatives from state agencies involved in marine resource management, to evaluate proposals for establishing and managing state MMAs. The state interagency coordinating committee should review proposals to ensure that the minimum required information is included in the proposal, to determine those state agencies that

should review the proposal, and to ensure consistency with other such designations in the state. After initial review by the coordinating committee and appropriate agencies, the proposal should be forwarded to a scientific review panel.

- A scientific review panel, with statewide representation and direction from the coordinating committee, to evaluate proposals for technical and scientific validity, including consideration of such things as site design criteria, location and size. This panel, to the extent practical, should be the same as the master plan team used in the AB 993 process. Members should maintain familiarity with the types and effectiveness of MMAs used in other parts of the world for potential application to California. Where possible, advice should be sought from existing regional or statewide marine research panels and advisory groups. From the scientific review panel the proposal should be forwarded to the appropriate designating entity for a public review process.
- A process that provides for public review and comment in writing and through workshops or hearings, consistent with the legal mandates applicable to designating entities. Outreach during this process should be made to commercial and sport fishing groups, conservation organizations, recreational interests, academia, and the general public.
- Dedicated staff support through, or under the supervision of, a cabinet-level agency to receive proposals, assist the interagency coordinating committee and scientific review panel, ensure proper and timely routing of proposals, etc.

This proposed site designation process does not necessarily replace a designating entity's process, though, if it does not, the designating entity should incorporate the above elements. This proposed process also does not address the potential need for permits from other agencies before the designation process is completed; all applicable permits and leases must be obtained prior to final designation.

***Recommendation A-7. Site proposals for designating MMAs should be made more consistent.***

A standard set of instructions for each classification should be established for guiding organizations and individuals in submitting proposals. Each proposal shall include the following elements, at a minimum, prior to consideration for designation:

- Name of individual or organization proposing designation.
- Contact information for the organization (including contact person) or individual.
- Proposed classification.
- Proposed site name.
- Site location.
- Need and purpose (goals) for the site.

- Justification for how the proposed site meets the designation criteria for the proposed classification.
- A general description of the proposed site's pertinent biological, geological, cultural and recreational resources.

The above information is necessary for the proposed state interagency coordinating committee's initial review of a proposal. In addition, the following elements, if not included in the original proposal, should be added by the appropriate agency in cooperation with the individual or organization making the proposal, prior to a final decision regarding designation:

- A more detailed description of the proposed site's pertinent biological, geological, cultural and recreational resources.
- Estimated funding needs and proposed source of funds.
- A plan for meeting enforcement needs, including on-site staffing and equipment.
- A plan for evaluating the effectiveness of the site in achieving stated goals.
- Intended educational and research programs.
- Estimated economic impacts (positive and negative) of the site.
- Proposed mechanisms for coordinating existing regulatory and management authority, if any exists, within the area.
- An evaluation of the advantages of cooperative state, federal and/or local management where such opportunities exist.

## **B. Management and Enforcement**

Although classification goals are sometimes identified in statute or regulation, the level of resource protection among sites within a classification may vary substantially. Agency personnel and the public are often confused about the laws, rules and regulations that apply to MMAs, especially those adjacent to a terrestrial component. Designation of sites and subsequent promulgation of regulations often occurs without adequate consideration being given to overall classification goals and objectives. This has contributed to fragmented management, poor compliance with regulations, and a lack of effective enforcement.

***Finding. Individual sites within the same classification (e.g., Ecological Reserve) sometimes have substantially different levels of protection and management.***

Statutes establishing and describing MMA classifications typically identify the general purpose for that classification and any standard rules and regulations. Site-specific rules and regulations adopted by the administrative agencies or Legislature are frequently and necessarily based on the condition of the site's resources and demand for resource use. However, site-specific rules and regulations are often established without consideration for the overall intent of the

classification, or for the maintenance of consistency among sites within a classification. In practice, this can lead to individual sites within the same classification having substantially different levels of protection that appear to alter or diffuse the intended purpose of the classification. Examples of this are:

- Marine Life Refuges are intended to protect all invertebrates and plants from recreational and commercial use, yet only four of the fourteen designated areas actually do so (Catalina Marine Science Center, Bodega, San Diego, and Hopkins Marine Life Refuges).
- Ecological Reserves have significant variation in the level of protection between individual sites, from complete protection of all resources (such as Point Lobos and Heisler Park Ecological Reserves) to the permitted collection or harvest of numerous species (such as Anacapa Island and Santa Barbara Island Ecological Reserves).

***Recommendation B-1. Management of MMAs within each classification must be made more consistent throughout the MMA system to simplify the sets of rules and regulations to which users must adhere.***

This can, in part, be accomplished by requiring that site-specific regulations be made consistent with classification goals, objectives, and general guidelines. The proposed state interagency coordinating committee should be given responsibility for reviewing new site-specific regulations for consistency with the state MMA system as a whole.

When combined with establishing clear goals and objectives for each classification (see Recommendation A-2), using a consistent designation process (see Recommendation A-6), and requiring more detailed designation proposals (see Recommendation A-7), a more consistent system will exist for users to understand.

***Finding. Enforcement is sometimes inadequate in state MMAs.***

MMAs are typically established to protect a resource, manage an activity, or both. In order to ensure that such resources and activities are sustained and available for future generations, management agencies must enforce the rules and regulations applicable to a particular site.

Many factors contribute to inadequate enforcement of rules and regulations within an MMA. Often, the expense associated with enforcement across vast areas makes adequate staffing difficult. Access to areas may be limited due to equipment, terrain or weather. In some cases, classifications or individual site designations are made legislatively without providing funding for the maintenance, staff and equipment necessary for adequate enforcement.

There is also the potential for confusion regarding enforcement responsibilities when multiple agencies are involved in establishing and managing sites or specific resources within an area, which can lead to partial enforcement or none at all.

***Recommendation B-2. Managing agencies should develop enforcement plans for existing MMAs (where such plans are not already in place), and proposed MMA sites should not be designated unless an approved enforcement plan exists.***

Enforcement responsibilities should be clearly specified during the process of designating MMA sites. Designating entities must make a stronger commitment to providing adequate funding for enforcement activities. More creative ways for improving compliance should also be pursued, such as using more volunteer staff, additional inter-agency agreements, or increasing education and outreach (this could include additional signs indicating rules, regulations and allowable uses of an MMA being placed in easily viewed locations at MMA sites).

### **C. Education and Outreach**

Education and outreach related to state MMAs is limited and responsibility for these activities is distributed across many state agencies. These factors hamper the distribution of information to the public regarding the benefits of MMAs and role they can play in protecting ocean and coastal resources. Lack of clarity about how the set of laws, rules and regulations for the array of MMAs interface and complement each other limits public and resource managers' ability to understand and apply the regulatory structure. In addition, there are few coordinated efforts to identify opportunities for public/private partnerships or public stewardship of MMAs, or to provide access to general information and data about ocean and coastal resources within California's MMAs.

***Finding. There is inadequate communication with the public about classification goals and objectives, the benefits of MMAs, and specific site regulations.***

The currently diffuse and uncoordinated management regime for state MMAs does not lend itself well to an effective public education and outreach effort. Specifically, agencies involved in MMAs have different education and outreach mandates, leading to a wide range in the quality and effectiveness of educational programs among MMA classifications. Education is necessary to promote public stewardship and ensure that the goals, benefits, and allowable uses or restrictions for specific classifications or sites are clear. In general, MMAs must be supported by the local community in order for enforcement and compliance to be effective.

***Recommendation C-1. Public education and outreach should be better supported and coordinated among agencies involved with MMAs.***

The following education and outreach activities are specific examples where support and coordination should be increased:

- Volunteer docent programs should be encouraged and supported for educational purposes as well as assistance with obtaining compliance with site rules and regulations. Other public/private partnerships should be considered for enhancing public stewardship and resource protection.
- Educational materials and programs for MMAs should be coordinated across government agencies and more often in cooperation with educational organizations (aquariums, universities, non-profits, etc.). Highly visible signage and interpretive centers are important since most people have a difficult time envisioning a protected area in the ocean.
- Educational flyers or brochures and web pages should be created for the state system of MMAs and each MMA classification.

- Activities for increasing public involvement in the conservation and management of California's marine resources should be encouraged and facilitated whenever possible. Examples include the Great American Fish Count, BayNet, the annual Coastal Cleanup Day, and the Surfrider Foundation's water quality monitoring program. Such increased involvement can also contribute to increased enforcement and protection levels within MMAs.

***Finding. Data and information about California's state MMAs, including research and monitoring information, are not easily accessible and lack consistency.***

California's natural resource managers should have the best available data and information for management, planning, research and regulatory efforts related to MMAs. In reality, managers are often forced to develop plans or implement policies based on generalized, incomplete, and sometimes inconsistent information. Interested parties are not able to gain quick, centralized access to information and data related to MMAs, including related statutes and regulations, goals and objectives, site-specific boundaries, general classification information, research or monitoring data, and recreational opportunities. In the past, this was due in part to the fact that standardized technology did not exist or that agencies did not yet have access to such technology. Without a central location, virtual or literal, where such information can be viewed, there is the potential for duplication of efforts and inefficient use of limited state dollars.

***Recommendation C-2. Data and information about California's MMAs (including past, current and proposed research and monitoring activities) should be made more consistent and readily accessible.***

Advances in information technology are making easy access to this information feasible and reasonable, providing the technical basis for encouraging beneficial ocean resource development, protection and enhancement activities in California's MMAs. The California Ocean and Coastal Environmental Access Network (Cal OCEAN) web project, currently in development through the California Environmental Resources Evaluation System (CERES) and the Resources Agency, should implement the latest information technology to augment the distribution of data and information pertinent to California's MMAs. CERES should also continue working with government agencies and the private sector to promote more consistency in electronic data management.

Summaries of past, current and proposed ocean and coastal research and monitoring activities should be made available through Cal OCEAN. In addition, important historical documents should be digitized and access to relevant data sets should be made available through Cal OCEAN whenever possible.

An effort should also be made to coordinate the distribution of information through brochures, pamphlets or other non-electronic means so that a lack of Internet access does not become a limitation to information dissemination.

#### **D. Evaluation and Research**

Research in California's MMAs can provide managers with a wealth of knowledge regarding habitat functions and values, species diversity, and complex physical, biological, chemical, and socio-economic processes that affect the health of marine ecosystems. In addition, such

information can be useful in determining the effectiveness of particular sites or classifications in achieving stated goals. In general, ocean and coastal scientists and managers know far less about the natural systems they work with than their terrestrial counterparts. Even basic information such as habitat distribution and species identification along the California coast is insufficient. In addition, understanding natural and human-induced factors that affect ocean ecosystem health, including MMAs, is fundamental to the process of developing sound management policies.

***Finding. There are no standard criteria for evaluating the effectiveness of MMAs.***

It is one thing to set aside an area for a particular purpose, and an entirely different thing to later determine whether that purpose is being met either at the individual site or as part of a larger group or system. There are no evaluation processes or set of measurable objectives for reviewing and assessing the effectiveness of state MMAs in California. Determining effectiveness is heavily dependent upon having clear goals and specific objectives established for classifications, monitoring programs to record changes in the designated areas, and baseline data to make comparisons.

***Recommendation D-1. An evaluation process and performance objectives should be established for determining the effectiveness of MMA sites and classifications in fulfilling their intended purpose.***

The following should be considered to address MMA evaluations:

- Site-specific and measurable objectives should be established at the time of site designation. These objectives should be subject to revision in recognition that the ocean environment is ever changing and that human knowledge and understanding is ever increasing. However, any proposed revisions to site objectives that substantially change the purpose of the MMA should be reviewed by the state interagency coordinating committee and ultimately be made through the appropriate managing agency's public review process.
- Site-specific evaluations should be conducted by the managing agency on a regular basis, with the process and timing dependent upon the resources being managed, but no less than every five years. It is possible that some objectives may not yet be realized within the five years. Completed evaluation reports should be submitted to the proposed state interagency coordinating committee and the original designating entity, which may call upon the proposed scientific review panel for assistance in reviewing the evaluation report. Recommended alterations to the design, regulations or management of the evaluated site should be part of the report.
- The proposed state interagency coordinating committee should be responsible for conducting periodic reviews, though no less than every five years, of the statewide system and evaluating whether it is meeting the proposed mission and statement of objectives. The committee may call upon the proposed scientific review panel for assistance in conducting this review. Any recommended changes regarding specific sites should be forwarded to the appropriate managing agency.

- To the extent possible, existing sites should also be evaluated for their effectiveness in meeting mandates during the integration process described in Recommendation A-3.

***Finding. Research and monitoring activities in state MMAs are limited and coordination of such activities is insufficient.***

Research and monitoring activities are necessary elements for effective management. Often, baseline data have not been available prior to the establishment of individual sites, making subsequent evaluations or comparisons difficult. Even after being designated, there is inadequate research and monitoring conducted within MMA sites.

With the exception of the coordinated research efforts in four Marine Resource Protection Act Ecological Reserves, California lacks a statewide coordinating mechanism for ocean and coastal research related to MMAs. For example, distribution of state Sea Grant funds is coordinated through the Resources Agency Sea Grant Advisory Panel, but there are numerous other sources of ocean and coastal research and monitoring dollars that are not coordinated through any specific effort.

***Recommendation D-2. Research that improves the monitoring or evaluation of state MMAs should be enhanced, encouraged and coordinated.***

Research, monitoring, and evaluation activities are necessary to determine the effectiveness of state MMAs in achieving the goals for which they are established. The Resources Agency Sea Grant Advisory Panel, proposed statewide coordinating committee and proposed scientific review panel are all potential mechanisms for increasing the participation in, and coordination of, research and monitoring programs in California's MMAs. Volunteer monitoring programs should be established and promoted whenever possible to help support research and management activities, so long as such programs adhere to standard sampling and analytical protocols to ensure that data are comparable among sites and programs.

Management agencies should especially promote or support research that proposes to do one or more of the following:

- Evaluates the effectiveness of MMAs in meeting their intended purpose through both on- and off-site research.
- Evaluates specific regulations used in MMAs and their effectiveness in meeting identified goals and objectives.
- Evaluates ecosystem indicators, or documents ecosystem changes over time to help assess the overall changes occurring within and adjacent to an MMA site due to natural variability or anthropogenic influence.
- Targets species or natural communities in need of protection within one or more MMA sites.
- Focuses on sensitive habitat, representative habitat, or habitat important to the preservation of rare, threatened, endangered or economically important stocks.

- Seeks to develop or consolidate long-term monitoring data useful in the assessment of MMA efficacy.
- Evaluates the success of a site or sites as tools in fisheries management.
- Evaluates the effectiveness of enforcement in providing adequate resource protection within MMAs.
- Evaluates the effectiveness of education and outreach efforts in MMAs.
- Will be conducted in coordination with local, state and federal partners in marine management activities.

***Recommendation D-3. General research related to California's marine resources and ecology should be encouraged and supported whenever possible.***

Marine resource managers have far fewer tools, and much less information than their terrestrial counterparts. In certain cases, even basic information, such as region-wide stock assessments and habitat distribution, are not readily available to resource managers and policy-makers. Such information is especially important in establishing and locating MMAs. With a lack of information related to the marine environment and resources, it is critical that a diversity of research be encouraged both inside and outside of MMAs to provide managers and policy-makers with as much information as possible about all aspects of the resources being managed or protected. Research within MMAs should be consistent with site goals and objectives, and without significant, negative, long-term impacts on the resources being protected.

## **CONCLUSION**

Through a mix of legislative and administrative actions, California's array of state marine managed areas should be re-designed as a system, to more effectively protect ocean and coastal resources. This will require cooperation among the various interested parties to determine the most appropriate actions for creating such a system. The findings and recommendations in this report are intended to establish the foundation for these future actions.

**TABLE 1: PROPOSED CLASSIFICATION SYSTEM FOR STATE MARINE MANAGED AREAS**

<b>CLASSIFICATION 1</b>			
<b>CLASS NAME, DESIGNATING ENTITY, AND MANAGING AGENCY</b>	<b>WHY DOES THIS CLASSIFICATION EXIST?</b>	<b>WHAT ARE THE RESTRICTIONS AND ALLOWABLE USES IN DESIGNATED AREAS?</b>	<b>EXISTING CLASSES W/SITES THAT COULD BE INCORPORATED INTO NEW CLASS</b>
<b>Marine (Estuarine) Reserve</b>  Fish & Game Commission  Department of Fish & Game or Department of Parks & Recreation	<b>Goals:</b> Marine (Estuarine) Reserves are designated to achieve one or more of the following:  (1) protect or restore rare, threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitats in marine areas;  (2) protect or restore outstanding or representative marine species, communities, habitats and ecosystems;  (3) protect or restore large marine gene pools; or  (4) contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative or imperiled marine habitats or ecosystems.	<b>Restrictions:</b> all living and non-living marine resources are fully protected. It is unlawful to injure, damage, take or possess any living, geological or cultural marine resource, except under a permit or specific authorization for research, restoration or monitoring purposes. Access and use (such as walking, swimming, boating and diving) may be restricted to protect marine resources.  <b>Allowable Uses:</b> research, restoration and monitoring are permitted. Educational activities and other forms of non-consumptive human use may be permitted in a manner consistent with the protection of all marine resources.	Ecological Reserves (DFG)  Marine Resources Protection Act Ecological Reserves (DFG)  State Reserves (DPR)  Natural Preserves (DPR)  Refuges (DFG)  Reserves (DFG)

**TABLE 1 (continued)**

<b>CLASSIFICATION 2</b>			
<p><b>Marine (Estuarine) Park</b></p> <p>Park &amp; Recreation Commission (with concurrence from Fish &amp; Game Commission for any restrictions on living marine resource extraction)</p> <p>Department of Parks &amp; Recreation</p>	<p><b>Goals:</b> Marine (Estuarine) Parks are designated to provide opportunities for spiritual, scientific, educational, and recreational opportunities, as well as one or more of the following:</p> <p>Goals (2) and (4) from Classification 1;</p> <p>(3) preserve cultural objects of historical, archaeological and scientific interest in marine areas; or</p> <p>(4) preserve outstanding or unique geological features.</p>	<p><b>Restrictions:</b> all living and nonliving marine resources are protected from commercial exploitation, and from any human use that would compromise protection of the targeted species, natural community or habitat, or geological, cultural or recreational features.</p> <p><b>Allowable Uses:</b> all other uses allowed, including scientific collection with a permit, research, monitoring and public recreation (including recreational harvest, unless otherwise restricted). Public use, enjoyment and education are encouraged, in a manner consistent with protecting resource values.</p>	<p>Ecological Reserves (DFG)</p> <p>State Parks (DPR)</p> <p>Natural Preserves (DPR)</p> <p>Historical Units (DPR)</p>
<b>CLASSIFICATION 3</b>			
<p><b>Marine (Estuarine) Conservation Area</b></p> <p>Fish &amp; Game Commission or Park &amp; Recreation Commission (with concurrence from Fish &amp; Game Commission for any restrictions imposed upon living marine resource extraction)</p> <p>Department of Fish &amp; Game or Department of Parks &amp; Recreation</p>	<p><b>Goals:</b> Marine (Estuarine) Conservation Areas are designated to achieve one or more of the following:</p> <p>Goals (1), (2), (3) and (4) from Classification 1;</p> <p>Goal (4) from Classification 2; or</p> <p>(6) provide for sustainable living marine resource harvest.</p>	<p><b>Restrictions:</b> will vary depending upon the targeted species, natural community, habitat, or ecological or geological feature being protected. In general, limits commercial and/or recreational uses that would compromise protection of the targeted species, natural community, habitat or geological features.</p> <p><b>Allowable Uses:</b> research, education and recreational activities, and certain commercial and recreational harvest of marine resources.</p>	<p>Ecological Reserves (DFG)</p> <p>Reserves (DFG)</p> <p>Refuges (DFG)</p> <p>State Parks (DPR)</p> <p>State Seashores (DPR)</p> <p>State Recreation Units (DPR)</p>

**TABLE 1 (continued)**

<b>CLASSIFICATION 4</b>			
<b>Marine (Estuarine) Cultural Preservation Area</b>  Park & Recreation Commission  Department of Parks & Recreation	<b>Goal:</b> Marine (Estuarine) Cultural Preservation Areas are designated to preserve cultural objects or sites of historical, archaeological or scientific interest in marine areas;	<b>Restrictions:</b> all cultural resources are fully protected from consumptive human activities. It is unlawful to damage, take or possess any cultural marine resource. Complete integrity of the cultural resources shall be sought, and no structures or improvements which conflict with such integrity shall be permitted.  <b>Allowable Uses:</b> no other uses are restricted.	Cultural Preserves (DPR)  Historical Units (DPR)
<b>CLASSIFICATION 5</b>			
<b>Marine (Estuarine) Recreational Management Area</b>  Park & Recreation Commission  Department of Parks & Recreation	<b>Goal:</b> Marine (Estuarine) Recreational Management Areas are designated to provide recreational opportunities to meet other than purely local needs while preserving basic resource values for present and future generations.	<b>Restrictions:</b> prohibits any activities that would compromise the recreational values for which the area is designated.  <b>Allowable Uses:</b> no other uses are restricted.	State Seashores (DPR)  State Recreational Units (DPR)

**TABLE 1 (continued)**

<b>CLASSIFICATION 6</b>			
<b>Water Quality Protection Area</b>  Water Resources Control Board or Regional Water Quality Control Boards  Water Resources Control Board	<b>Goal:</b> Water Quality Protection Areas are designated to protect marine species or biological communities from an undesirable alteration in natural water quality.	<b>Restrictions:</b> protects water quality by prohibiting or limiting by special conditions point source waste and thermal discharges. Nonpoint source pollution is controlled to the extent practicable.  <b>Allowable Uses:</b> no other uses are restricted.	Areas of Special Biological Significance (SWRCB)  * Note: ASBSs are limited to designation in ocean waters, but the SWRCB and RWQCBs have authority to prohibit or limit waste discharges to other waters.



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